We claim:

1.  An adaptive equalizer comprising:

    a Viterbi decoder having 16 stages and producing a decoded output;

    a mapper coupled to the decoded output of the Viterbi decoder, the mapper

producing a mapped output; and

    a decision feedback equalizer coupled to the mapped output, the decision

feedback equalizer having more than 16 taps;

    wherein 16 of the taps each receive as input via the mapper output from a

respective one of the 16 stages of the Viterbi decoder.

2   The adaptive equalizer of claim 1, further comprising an FIR filter.

3   The adaptive equalizer of claim 1, wherein at least one tap receives as input via

the mapper delayed output from the 16th decoding stage.

4.  An adaptive equalizer comprising:

    a Viterbi decoder having 16 stages and producing a decoded output;

    a mapper coupled to the decoded output, the mapper producing a mapped output;

and

    a decision feedback equalizer coupled to the mapped output, the decision

feedback equalizer having fewer than 16 taps;

wherein each of the taps receives as input via the mapper output from a respective one of the 16 stages of the Viterbi decoder.

5.      The adaptive equalizer of claim 4, wherein the taps receive the output from the earliest "x" decoding stages, where "x" is the number of taps.

6.      The adaptive equalizer of claim 5, wherein an error signal is generated from the 16th decoding stage.

7.      An adaptive equalizer comprising:

a trellis decoder producing a decoded output;

a mapper coupled to the decoded output and having a mapped output; and

a decision feedback equalizer coupled to the mapped output, the decision feedback equalizer having fewer than 16 taps;

wherein each of the taps receives as input via the mapper output from a respective one of the 16 stages of the trellis decoder.

8.      An adaptive equalizer comprising a decision feedback equalizer and a trellis decoder, the decision feedback equalizer receiving as input information from the trellis decoder.

9.      The adaptive equalizer of claim 8, wherein the trellis decoder is a Viterbi decoder.

10.    The adaptive equalizer of claim 8, further comprising a mapper, and wherein the

information from the trellis decoder passes through the mapper before the information is

input to the decision feedback equalizer.

11.    The adaptive equalizer of claim 10, wherein the trellis decoder is a Viterbi

decoder.

12.    The adaptive equalizer of claim 11, wherein the Viterbi decoder has .16 stages.

13.    An adaptive equalizer consisting of:

        an FIR filter;

        a trellis decoder coupled to the FIR filter and having a decoded output; and

        a mapper;

        a decision feedback equalizer coupled to the FIR filter and to the trellis encoder

via the mapper;

        wherein the decoded output is mapped and scaled by the mapper and used by the

adaptive equalizer to generate an error signal.